



33 JUN 2004



(43) International Publication Date
24 July 2003 (24.07.2003)

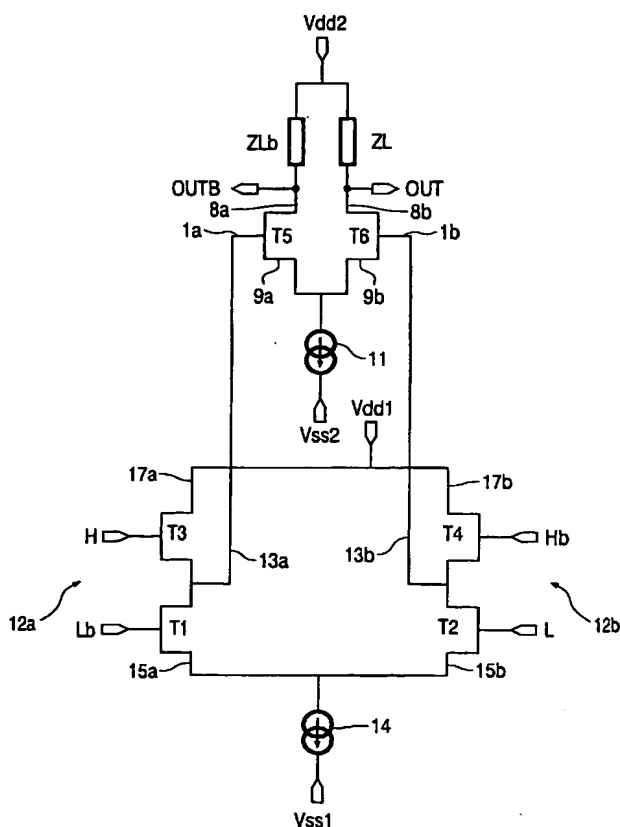
(10) International Publication Number
WO 03/061122 A3

PCT

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>(51) International Patent Classification⁷: H03K 19/185,
 19/094</p> <p>(21) International Application Number: PCT/IB02/05619</p> <p>(22) International Filing Date:
 18 December 2002 (18.12.2002)</p> <p>(25) Filing Language: English</p> <p>(26) Publication Language: English</p> <p>(30) Priority Data:
 01403383.1 28 December 2001 (28.12.2001) EP</p> <p>(71) Applicant (<i>for all designated States except US</i>): KONIN-
KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).</p> <p>(72) Inventors; and</p> <p>(75) Inventors/Applicants (<i>for US only</i>): GASMI, Ahmed
[DZ/NL]; Prof. Holstlaan 6, NL-5656 AA Eindhoven
(NL). HOURLY, Jean [FR/NL]; Prof. Holstlaan 6,
NL-5656 AA Eindhoven (NL).</p> | <p>(74) Agent: LOTTIN, Claudine; Internationaal Octrooibureau
B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).</p> <p>(81) Designated States (<i>national</i>): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VC, VN, YU, ZA, ZM, ZW.</p> <p>(84) Designated States (<i>regional</i>): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK,
TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).</p> <p>Published:
— <i>with international search report</i></p> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

[Continued on next page]

(54) Title: DIFFERENTIAL AMPLIFIER CIRCUIT FOR REGENERATING COMPLEMENTARY DIGITAL SIGNALS



(57) Abstract: An amplifier circuit for regenerating complementary digital signals which comprises a differential pair of transistors (T5, T6). This circuit also comprises a pair of push-pull amplifiers (12a, 12b) which consists of a first and a second push-pull amplifier having a first and a second low input (L, Lb) which are coupled to a source for the input signal and its complement, respectively, a first and a second high input (H, Hb) which are coupled to a source of the complementary input signal and to a source of the input signal, respectively, a first and a second output (13a, 13b) which supply, under a low impedance and during switching, brief and intense current pulses of said complementary input signals of increased amplitude in order to apply these pulses to the first and second control inputs (1a, 1b) of the first and second transistors (T5, T6) of the differential pair, respectively.

WO 03/061122 A3



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(88) Date of publication of the international search report:
18 December 2003

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP02/05619

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H03K19/0185 H03K19/094

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H03K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>RIISHOJ ET AL: "ABOVE 8GHZ STATIC T-FLIP-FLOP OPERATION USING FT=22.9GHZ GAAS MESFETS" PROCEEDINGS OF THE EUROPEAN MICROWAVE CONFERENCE. ESPOO, FINLAND, AUG. 24 - 27, 1992, TUNBRIDGE WELLS, MEP, GB, vol. 1 CONF. 22, 24 August 1992 (1992-08-24), pages 313-317, XP000337783 figure 3</p> <p style="text-align: center;">--- -/--</p>	1-9

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

6 October 2003

Date of mailing of the international search report

14/10/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Moll, P

INTERNATIONAL SEARCH REPORT

International Application No
PCT/JP 02/05619

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>LAO Z ET AL: "40-GB/S HIGH-POWER MODULATOR DRIVER IC FOR LIGHTWAVE COMMUNICATION SYSTEMS" IEEE JOURNAL OF SOLID-STATE CIRCUITS, IEEE INC. NEW YORK, US, vol. 33, no. 10, October 1998 (1998-10), pages 1520-1526, XP000854252 ISSN: 0018-9200 figures 4,5</p>	1-4,6-9
X	<p>NAGAVARAPU S ET AL: "A 1.0625 Gbps PECL Line Driver" CIRCUITS AND SYSTEMS, 1997. PROCEEDINGS OF THE 40TH MIDWEST SYMPOSIUM ON SACRAMENTO, CA, USA 3-6 AUG. 1997, NEW YORK, NY, USA, IEEE, US, 3 August 1997 (1997-08-03), pages 1158-1160, XP010272274 ISBN: 0-7803-3694-1 figure 2</p>	1
X	<p>PATENT ABSTRACTS OF JAPAN vol. 011, no. 312 (E-548), 12 October 1987 (1987-10-12) & JP 62 104312 A (NEC CORP), 14 May 1987 (1987-05-14) abstract; figure 1</p>	1
X	<p>US 2001/024137 A1 (MIURA KEIJI) 27 September 2001 (2001-09-27) paragraph '0004!; figures 4,5</p>	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/JP 02/05619

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 62104312	A	14-05-1987	NONE	
US 2001024137	A1	27-09-2001	JP 3344404 B2	11-11-2002
			JP 2001257579 A	21-09-2001
			CA 2340516 A1	14-09-2001
			DE 10111999 A1	22-11-2001